CLAIMS

1. Process for the production of gasoline with a low sulfur content, characterized in that it comprises at least three stages:

A) a first stage in which the sulfur-containing compounds present in the gasoline are at least partially transformed into H2S and into saturated sulfur-containing compounds,

B) a second stage whose purpose is to eliminate the H2S from the gasoline produced in stage A,

C) a third stage in which the saturated sulfur-containing compounds remaining in the gasoline are transformed into H2S.

2. Process according to claim 1, wherein a pretreatment stage whose purpose is to hydrogenate the diolefins of the feedstock is carried out before stage A.

3. Process according to any of claims 1 or 2, wherein the feedstock is a catalytic cracking gasoline.

4. Process according to any of claims 1 to 3, wherein stage A is carried out by sending the feedstock, in the presence of hydrogen, over a catalyst comprising at least one element of group VIII and/or at least one element of group VIb, at least in part in sulfide form.

5. Process according to claim 4, wherein the element of group VIII, when it is present, is nickel or cobalt, and the

element of group VIb, when it is present, is molybdenum or tungsten.

6. Process according to claim 5, wherein stage A is carried out at a temperature of between about 210°C and about 350°C, under a pressure that is generally between about 1 and about 5 MPa, with a volumetric flow rate of the liquid of between about 1 and about 10 h^{-1}, and an H_2/HC ratio of between about 100 and about 600 liters.

7. Process according to any one of claims 1 to 6, wherein stage C is carried out in the presence of a catalyst comprising at least one metal selected in the group consisting of nickel, cobalt, iron, molybdenum and tungsten.

8. Process according to claim 7, wherein the base metal content is between 1 and 60% by weight, and said metal is sulfurized.

9. Process according to any one of claims 1 to 8, wherein stage C is carried out at a temperature of between about 200°C and about 350°C, a pressure of between about 0.5 and about 5 MPa, a liquid volumetric flow rate that is between about 0.5 and about 10 h^{-1} and an H_2/HC ratio of between about 100 and about 600 liters per liter.

10. Process according to any of claims 1 to 9 implemented with at least two separate reactors, not including a feedstock pretreatment reactor, whereby the first reactor contains the catalyst that is necessary for stage A and the second at least the one that is necessary for stage B.

11. Process according to any of claims 1 to 9 implemented with at least two separate reactors, not including a feedstock pretreatment reactor, whereby the first reactor contains at least a portion of the catalyst necessary for stage A and the second at least the other portion of the one necessary for stage A and the one necessary for stage B.

12. Process according to any of claims 1 to 11, wherein stage B for the elimination of H2S is carried out by adsorption in the presence of an adsorbent mass selected in the group consisting of zinc oxide, copper oxide and molybdenum oxide.

13. Process according to claims 1 to 11, wherein H2S is separated using a membrane.